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forming a series which exhibits very nicely a process of gradual reduction in the number of teeth.—*J. A. Ryder.*

A NEW SPECIES OF *CÆLODON*.—Prof. Reinhardt's contributions to our knowledge of the poorly known genus *Cælodon* established in 1839 by Dr. Lund for the reception of a Megatheroid, the remains of which were obtained by the latter author in the bone caves of Brazil, are also noteworthy. The memoir¹ deals with the remains brought by Dr. Lund to Copenhagen, but not fully described and figured by him. The skull in the present paper is well represented, and valuable figures are given of the feet of *Cælodon esquivanensis*, based on the remains of the young individual found in the last cavern, la Lapa de Esquivania, which Dr. Lund explored in 1844, whilst the name *C. maquinensis* Lund, is retained for the species represented by teeth found in la Lapa nova Maquiné by that explorer in 1835. The *C. esquivanensis* was about the size of the large South American ant-eater (*Myrmecophaga jubata*), and in the opinion of Dr. Reinhardt was most nearly allied to *Mylodon*, and in some respects to the existing arboreal *Cholæpus*. Its habits, the same authority thinks, were arboreal, and he looks forward with much interest to the discovery of an extinct type which seems to us dimly shadowed forth in *Cælodon*, and which will connect the fossil Megatheroids with the existing species of sloths. To us there is much evidence to show that the history of these animals—their succession in time and their descent—will yet be as completely worked out as that of the horse, dog and camel.—*J. A. Ryder.*

GEOGRAPHY AND TRAVELS.²

AFRICAN EXPLORATION.—Dr. Rohlfs writes from Djâlo (south-east of the Sella or Zeila oasis), on the 8th of April last, that he left Sokna on the 11th of March. Up to that point the traveler passed over a new route, partly through a desert country, and also through two hitherto unknown oases, Abu-Naïn and Djeb-bena. This region abounds in fossils of every kind, Ammonites, Echinidæ and others. "There is probably no other district in the world which is equally rich in its extinct marine fauna." Dr. Stöcker has sent home an accurate topographical survey of the Djofra oases on the scale of 1 : 100,000. These three oases, Sokna, Hon and Uadan, are bounded by ranges of hills to the north and south—the highest peak is Gannassa, 2000 feet above the sea-level. Owing to the fanaticism of the natives, Dr. Rohlfs was badly received at Djâlo, and has been unable to procure a guide on account of the unfriendliness of the Bengasine government. Dr. Stöcker has returned to Bengasi to try to favorably

¹ *Kæmpedovendyr Slægten Cælodon*. Af J. REINHARDT. (4to, p. 257–349, pls. 7. Ext. Videns. Selsk. Skr. 5te Raekke, Naturvidensk. og Mathem. Afd. xii, 3.) Copenhagen, 1878.

² Edited by ELLIS H. YARNALL, Philadelphia.

influence the rulers of the country and enable the expedition to proceed to Kufra, the next oasis in their journey to Wadai.

Mr. Donald Mackenzie has established a station at Cape Juby on the north-west coast of the continent, and made a treaty with a powerful native chief, by means of which it is hoped a large and important trade with North-central Africa will be opened up.

M. de Semellé has now returned to France, and states that he followed the course of the Niger from Omtcha as far as Boussa, a distance of 300 miles, and the Benué as far as Oku (?). He has collected much information on the products of the country, and concerning the history and traditions of the people. Daily meteorological observations were taken.

M. Soleillet has also returned home, and in a recent address speaks highly of the intelligence and peaceable character of the Sultan and population of Sego. The Niger at Sego, 2000 miles from its mouth, is 300 yards wide.

The Rev. S. I. Comber, of the Baptist Missionary Society (English), has left England to found a station at San Salvador, situated about 100 miles south of the Congo and 200 from the coast. He hopes ultimately to reach Stanley Pool above the falls of the Congo, and launch there a small steamer which is to be taken up in sections. The Royal Geographical Society has supplied him with instruments.

Dr. Buchner, one of the German African Society explorers, has been detained by the rainy season at Cassange, on the Quango, before going on to the capital of Muata Yanvo's kingdom.

Maj. Mechow, another member of this expedition, will attempt to descend the Quango river from Cassange until it joins the Congo, where Stanley identifies it with the Ibari Nkutu.

Maj. Serpa Pinto, on his arrival in Lisbon, delivered a lecture on his recent journey from Benguela to Natal. This address has been fully reported in the daily press of England and America, but being unfortunately very vague and rambling in character, we are glad to quote from the London *Athenæum* (July 19, 1879) the following notice of his work as explained by him very recently to a company gathered at the house of the president of the R. G. S., in London: "The new ground traversed by Maj. Pinto is comprised between Bihé, in the interior of Benguela, and a place called Lialué, in the 'Barotse valley,' passed by Livingstone on his journey northward along the Zambesi towards St. Paulo de Loanda. Thus defined, the new country which the Portuguese explorer has opened up, is about five hundred miles broad from north-west to south-east. The blank space is traversed on Livingstone's map by a number of rivers set down from native report, and the names have turned out generally to be correct, although the courses of the rivers are wrongly given. The great merit of Maj. Pinto's exploration lies in the accurate definition of these rivers, and the fixing of all important points by astronomi-

cal observation. Arrived on the Upper Zambesi, his route led him along regions previously made known by Livingstone and other travelers. Maj. Pinto, however, made excursions near the confluence of the Chobé to ascertain the true hydrology of the region before striking south-eastward. He then made for Soshong, the capital of the Bechuana country, and crossed the little known westerly portion of the Transvaal on his way to Pretoria and Natal, continuing his survey as he went, and adding most materially to an accurate knowledge of the geography of the less known districts."

"As geographical results of the highest importance must be mentioned first his longitudes. Maj. Serpa Pinto performed the feat of carrying three chronometers, one of which, by Dent, kept excellent time across the continent. Their indications were checked by astronomical observations, including the transit of Mercury, eclipses and occultations, which have been proved exact; and thus there are no grounds for doubting the remarkable conclusion which he draws, that Soshong is placed on our maps more than a degree *west* of its true position—a conclusion which necessitates the shifting of the Limpopo a degree to the east and narrowing our territory in the Transvaal to a corresponding amount."

"Next in importance is the light he has thrown on the topography and physical geography of the region along the southern border of the Benguela highlands. Lieut. Cameron, who traversed these highlands on his journey from east to west, established the fact that the succession of terrace formed coast ranges of Western Africa here broadens out into a lofty plateau. Pinto devoted much of his time and attention to this interesting region. He visited the sources of many of the rivers rising on this water shed, traced and mapped them; and afterwards, part of the courses of two of them, which flow south and south-west towards the lower lying region bordering the Kalahari desert. On the Benguela plateau, at an elevation of 5800 feet, is situated the central native town of Bihé, peopled by a race of Boer traders and travelers, parties of whom annually traverse the whole western interior. A little west of this, within the space of a few yards, rise four great streams which flow respectively north-west and south-west to the Indian ocean, east to the Zambesi and south to Lake Ngami. Pinto's journey southward and eastward from Bihé led him to the upper waters of the Cubango and its tributaries, and the Cuando. The Cubango (visited in its lower course by Andersson and called by him the Okavango) he satisfied himself has no connection with any other stream, and discharges its waters in the inland basin of Lake Ngami. But the Cuando, a much less known and far more important stream, after gathering the drainage of numerous large tributaries, flows for several hundred miles as a navigable river and enters the Zambesi, its lower course.

being the stream made known by Livingstone under the erroneous name of Chobé.

"Maj. Pinto did not descend these rivers for any great distance, but struck across their upper waters. He had by that time exhausted his means and was reduced to the verge of starvation in a district of swamps inhabited by a light-colored race of savages allied to the Bushmen. He consequently made for the Zambesi by the nearest route, and eventually succeeded in struggling through to the less barbarous settlements further south. He has submitted all his maps and astronomical observations, and his well kept barometrical register, to the inspection of competent judges in London."

The other division of the Portuguese Expedition, under Messrs. Capello and Ivens, arrived at Cassange in December, 1878. Since leaving Bihé in November, 1877, they have explored a part of the river Quango. When last heard from (April 5, 1879) they were on the margin of the river Lucala, examining the country traversed by the Cubango. They had already explored that river from its source to 8° S. lat.

MICROSCOPY.¹

CONTAGION AND THE GERM THEORY.—One of the best of the "American Health Primers," now in course of publication by Lindsay & Blakiston, of Philadelphia, is the little treatise upon "Long Life and How to Reach it," by Dr. J. G. Richardson. As might be expected, from the name of the author, those parts of the subject which have been fields for microscopical work, are treated with marked interest and ability. The germ theory of disease, in which the author seems to have become an earnest believer, is explained in a very simple and plausible manner, and is made the text for much sensible advice as to the means of avoiding contagious diseases, including those which are communicated by public drinking cups and toys, such as whistles and toy balloons, which are touched to the lips after having been similarly used by other people. Very valuable, too, are the conclusions in regard to purifying and disinfecting infected articles or localities; and the folly is once more pointed out, which it seems as if people never would learn, of believing a place to be disinfected because it has been made to smell badly of some reputed disinfectant.

THE MICROSCOPE IN ENTOMOLOGY.—The illustrated paper on the anatomy of *Amblychila cylindriciformis*, by Mr. Carl F. Grissler, of Brooklyn, published in recent numbers of *Psyche*, is so full of philosophical spirit and of fine microscopical work, that it will interest many who are not entomologists and to whom the Cicindelidæ would be new acquaintances. This thorough and system-

¹ This department is edited by Dr. R. H. WARD, Troy, N. Y.